

Tissue biopsy

Types

Brain biopsy.

Endoscopic biopsy.

Meningeal Biopsy

Needle biopsy.

Open biopsy.

Percutaneous biopsy of pathology in the pedicle and/or vertebral body.

Stereotactic biopsy

see CT guided biopsy.

Tissue biopsy is most commonly archived in a paraffin block following tissue fixation with formaldehyde (FFPE) or as fresh frozen tissue (FFT). While both methods preserve biological samples, little is known about how they affect the quantifiable proteome. Schoffman et al. performed a 'bottom-up' proteomic analysis (N = 20) of short and long-term archived FFPE surgical samples of human meningiomas and compared them to matched FFT specimens. FFT facilitated a similar number of proteins assigned by MetaMorpheus compared with matched FFPE specimens (5378 vs 5338 proteins, respectively ($p = 0.053$), regardless of archival time. However, marked differences in the proteome composition were apparent between FFPE and FFT specimens. Twenty-three percent of FFPE-derived peptides and 8% of FFT-derived peptides contained at least one chemical modification. Methylation and formylation were most prominent in FFPE-derived peptides (36% and 17% of modified FFPE peptides, respectively) while, most of the phosphorylation and iron modifications appeared in FFT-derived peptides ($p < 0.001$). A mean of 14% (± 2.9) of peptides identified in FFPE contained at least one modified Lysine residue. Importantly, larger proteins were significantly overrepresented in FFT specimens, while FFPE specimens were enriched with smaller proteins ¹⁾.

¹⁾

Schoffman H, Levin Y, Itzhaki-Alfia A, Tselekovits L, Gonen L, Vainer GW, Hout-Siloni G, Barshack I, Cohen ZR, Margalit N, Shahar T. Comparison of matched formalin-fixed paraffin embedded and fresh frozen meningioma tissue reveals bias in proteomic profiles. *Proteomics*. 2022 Sep 13:e2200085. doi: 10.1002/pmic.202200085. Epub ahead of print. PMID: 36098096.

From:
<https://neurosurgerywiki.com/wiki/> - Neurosurgery Wiki

Permanent link:
https://neurosurgerywiki.com/wiki/doku.php?id=tissue_biopsy

Last update: 2024/06/07 02:51



